

## **PROCESS FOR PRODUCING METAL THIN FILMS BY ALD**

### **Abstract of the Disclosure**

The invention relates generally to processes for producing electrically conductive noble metal thin films on a substrate by atomic layer deposition. According to one embodiment of the invention a substrate with a surface is provided in a reaction chamber and a vaporised precursor of a noble metal is pulsed into the reaction chamber. By contacting the vaporised precursor with the surface of the substrate, no more than about a molecular layer of the metal precursor is formed on the substrate. In a next step, a pulse of molecular oxygen-containing gas is provided in the reaction chamber, where the oxygen reacts with the precursor on the substrate. Thus, high-quality metal thin films can be deposited by utilising reactions between the metal precursor and oxygen. In one embodiment, electrically conductive layers are deposited in structures that have high aspect ratio vias and trenches, local high elevation areas or other similar surface structures that make the surface rough.

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